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BOTANY.[1]

THE GRASS FLORA OF THE NEBRASKA PLAINS.—The plains of Nebraska were originally covered in great part with various small grasses to which the common name of "Buffalo grass" was applied. The true Buffalo grass (*Buchloë dactyloides* Engelm.) formerly extended eastward to or nearly to the Missouri River, but now it is rare east of the 100th meridian. On the curious depression near the city of Lincoln, to which the general name of "Salt Marsh" has been given (although it is in no sense a marsh), small patches of Buffalo grass may still be found. It is a peculiar grass, and when one has once noticed a patch of it, he will at once be able to recognize it even at a distance. It invariably grows in patches, and in each patch scarcely anything else grows. It does not intermingle with other species but holds complete possession of the soil, forming a dense mat which chokes out all opposition.

Northwestward, up the Elkhorn Valley, Buffalo grass does not appear in any quantity until very nearly the 100th meridian is reached, although much of the land is still uncultivated. Going westward from Lincoln, small patches are to be seen in Clay county (98th meridian), and from this point it increases as one goes up the plain above the 2,000 ft. line. In the Loup valley, however, Buffalo grass is not abundant, while in the Republican it is very common. In the western portion of the State, from the Lodge Pole Creek on the south to the White River country on the north, it is still very abundant.

Gramma (*Bouteloua oligostachya* Torr.) is still found throughout the State, although it is by no means abundant in the eastern two-thirds. It is often called Buffalo grass, and from it a short hay is sometimes cut in the latter part of summer. Its relative, the Muskit or Mesquite grass (*Bouteloua racemosa* Lag.), has a still wider distribution, extending eastward into Iowa and Illinois, and westward across the plains.

In the far-west, above the altitude of 3,500 feet above the level of the sea, another of the grasses of the plains proper appears. It resembles Buffalo grass so closely in general appearance, that it may well bear the name of False Buffalo grass (*Munroa squarrosa* Torr.), although it belongs to an entirely distinct genus.

Upon the saline and alkaline soils Salt grass (*Distichlis maritima* Raf.) grows in abundance. I have seen it upon all parts of the great Nebraska plain.

The grasses which are most noticeable in nearly all portions of this region are the Blue Stems or, as they are sometimes called, the Blue Joints. The great *Andropogon provincialis* Lam. and its smaller relative *Andropogon scoparius* Michx. occur in company with *Chrysopogon nutans* Benth., the latter often called Bushy Blue

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[1] Edited by Prof. Chas. E. Bessey, Lincoln, Neb.

Stem. Throughout all parts of the State they occur in company, and they are common and abundant in nearly every locality. However, in the eastern part of the region they grow taller, and are more inclined to entirely cover the ground. The first-named often attains a height of from six to eight feet. In the western part of the region *Andropogon saccharoides* Swz., a feathery topped species, occurs along with the preceding.

In the eastern counties Wheat grass (*Agropyrum glaucum* R. & S.) appears in little patches, which are plainly noticeable on account of their glaucous green color. As every botanist knows, this species bears a remarkable resemblance to Quack grass (*Agropyrum repens* Beauv.), but it is not as much inclined to spread by its underground rootstocks as its eastern relative. As we go westward this Wheat grass increases in abundance, and by the time we reach the altitude of 3,000 to 5,000 feet, it is one of the most valuable of the hay grasses, and is relied upon very largely for forage by the farmers and stock growers.

Two other grasses are very common upon the plains, viz., *Eatonia obtusata* Gr. and *Koeleria cristata* Pers. They occur everywhere upon the drier lands, and are emphatically Prairie grasses. With them we find very commonly *Sporobolus asper* Kth., a late-growing species, which remains standing all winter long, with leaves wrapped around its partly enclosed fruiting panicle.—*Charles E. Bessey.*

SOLMS-LAUBACH'S PALÆOPHYTOLOGIE.—A few months ago this important work was brought out by Arthur Felix in Leipzig. Its scope may be indicated by the following summary of its contents: Thallophytes and Bryophytes receive 19 pages; Coniferæ, 33; Cycadeæ medulloseæ, 20; Cordaiteæ, 19; Ferns, 53; Lepidodendreæ, 48; Sigillarieæ, 23; Stigmaria, 32; Calamarieæ, 50; Sphenophylleæ, 13. Fifty or more pages are devoted to smaller groups, and to the discussion of genera of doubtful affinity. Forty-nine wood-cuts add materially to the value of the volume.

BOTANICAL WORK IN NEW YORK.—The reception of two reports from the State botanist enables us to note the progress of systematic botany in New York. The statement of the work of the botanist for 1885, published in the Thirty-ninth Annual Report of the New York Museum of Natural History, 1886, includes descriptions of many new species of fungi, among which are seven species of Agaricus, one of Russula, two of Boletus. The New York species of the genera Pleurotus, Claudopus and Crepidotus are fully described.

In the Bulletin of the New York State Museum of Natural History, Vol. I., No. 2, which bears date of May, 1887, Mr. Peck describes fifty-four species of fungi, among which is an interesting

Morchella (*M. angusticeps*), which is apparently related to *M. conica* Pers. Descriptions of the New York species of the genera Paxillus, Cantharellus and Craterellus follow in the usual lucid style of the author. Measurements are give (unfortunately in fractions of an inch), and good notes as to habits and habitats.

The New York Pyrenomycetous fungi are listed according to Saccardo's nomenclature, and for convenience the former names are given in a parallel column. The Bulletin closes with a monograph of the New York species of Viscid Boleti. Fourteen species are carefully described, two of which (*B. subluteus* and *B. americanus*) are new to science. Two good plates accompany the Bulletin.—*Charles E. Bessey.*

THE DEATH OF DR. ASA GRAY.—On the 30th of January, Dr. Asa Gray, the venerable botanist, passed away, after an illness of two months. He was born in Oneida county, N. Y., November 18, 1810, and was consequently a little more than 77 years old when he died. Although spared to such an advanced age, with undiminished mental and bodily vigor, which enabled him to continue work into his 78th year, yet all the world of science will mourn his death, regretting that so great and kind a master should be taken away. A longer notice will appear later.

BOTANICAL NEWS.—The November-December number of *Hedwigia* contains a heliotype of the lamented Georg Winter, with a sketch of his life and labors. Dr. C. Sanio now assumes editorial control of *Hedwigia.*——The second number of *Annals of Botany* contains papers as follows, viz.: On Hydrothrix, a new genus of Pontederiaceæ, by Sir J. D. Hooker; On the obliteration of the Sieve-tubes in Laminariæ, by F. W. Oliver; Some words on the life-history of Lycopods, by Melchior Treub; On the modes of climbing in the genus Calamus, by F. O. Bower; On the limits of the use of the terms Caulome and Phyllome, by F. O. Bower; On the absorption of Water, and its relation to the constitution of the cell-wall, by J. R. Vaizey; On the use of certain plants as Alexipharmics, or Snake-bite Antidotes, by D. Morris; Notes on the genus Taphrina, by Benjamin L. Robinson. In addition there are several short notes, and a couple of book notices.——In the January *Journal of Botany*, James Britten takes up Professor E. L. Greene's discovery as to the nomenclature of Nymphæa (*Bull. Torr. Bot. Club*, Sept., 1887), and, after full discussion, makes out that hereafter our Nymphæaceæ must bear the following names: *Nymphœa advena* [Soland] Ait. (= *Nuphar advena* Ait.); *Nymphœa lutea* Linn. (= *Nuphar lutea* Smith.); *Nymphœa sagittifolia* Walt. (= *Nuphar sagittifolia* Pursh.); *Castalia pudica* Salisb. (= *Nymphœa odorata* Ait.) In other words, our Nuphars are hereafter to be Nymphæas, and our Nymphæas hitherto are hereafter to be known as Castalias.——In the January *Gardener's Monthly* the suggestion is made that certain species of Cactus may become of value as fodder plants for domestic animals.——The January *Torrey Bulletin* contains Studies in Typhaceæ, by Thomas Morong; New and Little-known Grasses, by F. L. Scribner, and New Western Grasses, by George Vasey, besides other articles of interest. Professor James suggests the name Anthophyta for Phanerogamia —a very good name too.——The January *Botanical Gazette* contains a portrait of Dr. W. Pfeffer, of the Botanical Institute at Tübingen, with a sketch of the institute, illustrated with a plan and views. The index to Vol. XII., which accompanies this number, is a model among indexes. Certainly no reader of the last year's volume of the *Gazette* can complain, in Carlylean phrase, of its "indexlessness."

ZOOLOGY.

FUNCTIONS OF INVERTEBRATE OTOCYSTS.—Professor Yves Delage has been performing some experiments with a view of ascertaining the functions of the so-called ears of invertebrates. His results (*Archives de Zool. gén. et Expérim.* v. 1886) go to show that besides auditory capacities, they possess regulative faculties. When the octocysts were destroyed, the animal could not regulate its movements. This he shows is not due to the injury to the nerve, because the extirpation of the eyes did not produce disorder in the movements. His experiments were mostly upon Crustacea and Cephalopods.

PARASITIC ROTIFERS.—The marine rotifers which are parasitic upon the curious Crustacean, Nebalia, are grouped in a family Seisonidæ and the species of these found in the Bay of Naples have recently been studied by Dr. L. Plate. He adds to the two genera before included (Seison and Saccobdella) a third, Paraseison, with four new species. In these the trochal discs have been reduced and may be represented by a few sensory setæ; the intestine terminates cæcally in either six; the reproductive glands are at the sides of or above the intestine; the tail has no sucking disk, but on the rounded extremity open the glands which serve to attach the ectoparasite to its host. The paper may be found in vol. vii. of the Naples *Mittheilungen*.

MEDITERRANEAN SYNAPTIDÆ.—Dr. R. Simon contributes to the Naples *Mittheilungen* (vii. p. 272, 1887) an account of the Mediterranean Synaptidæ, embracing the species *Synapta digitata*,